

**NOTES ON SOME GENERA AND SPECIES OF
EASTERN MOTHS WITH DESCRIPTIONS
OF NEW SPECIES (LEPIDOPTERA,
PHALAEINIDAE).**

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The following notes and descriptions are the result of some studies made at Cornell University and at the United States National Museum.

AMPHIPYRINAE

Procus Oken, 1815.

Procus Oken (Okens Lehrbuch der Naturgeschichte, vol. 3 (1), p. 682, 1815) with type *Noctua latruncula* Schiffermüller, 1775, designated by Tams (Entomologist, vol. 72, p. 73, 1939) is an older name for *Oligia* Hübner (Verzeichniss bekannter Schmettlinge [sic!], p. 213, [1821]) with type *Phalaena strigilis* Clerck, 1759, designated by Grote (Abhandlungen des naturwissenschaftlichen Vereins zu Bremen, vol. 14, p. 81, 1895). The two genotypes are extremely closely related species, and until very recently they were regarded as "varieties" of the same species by most European workers. The name *Procus* has been substituted for *Oligia sensu* Hampson by most workers in Europe, and the same action should be taken by American workers.

***Procus crytora* n. sp.**

In 1946 Dr. Ralph L. Chermock gave me some material which he had collected at Conistee Falls near Brevard, North Carolina; among the many interesting things from this lot was the new species described here. Later I found a specimen in the series of *semicana* Walker in the collection of the United States National Museum, and another specimen was sent in for identification by Dr. A. R. Shadle, of the University of Buffalo. I feel certain that this is the moth identified as *Oligia tonsa subjuncta* by Wild from Allegany State Park, New York, the locality of Dr. Shadle's specimen. (See Forbes, in Leonard, List of the Insects of New York, p. 647, 1928.) If the moth is present in collections, it will most likely be found under *tonsa subjuncta* or *semicana*, the latter of which it resembles closely.

General habitus and pattern of *semicana* Walker, but decidedly paler. The forewing with the basal half blackish overlaid with red-

dish scales, the outer half white with a slight grayish cast; the margin between the dark and light areas sharply defined by a bent line formed by the inner margin of the reniform and the lower part of the t. p. line; orbicular the same color as the ground of the basal area, outlined by a black annulus; the reniform oblique, defined by the blackish basal area on the inner side and by two spots on the outer side at the upper half; t. p. line defined by black dots on the veins; costa with a distinct trapezoidal black patch between t. p. and s. t. lines; subterminal area with two small, dark, blurred areas, one near the middle and the other near the outer angle; the s. t. line white and irregular. Hind wing pale, shining whitish gray.

Male genitalia as figured (Plate VI, figs. 1 & 1a). They differ from all other species of *Procus* known to me by the absence of the corona on the cucullus of the valve. They are immediately distinguished from *semicana* by the enlarged costal hump on the valve about two-thirds the way from base, by the shape of the cucullus, and by the absence of the corona.

Female genitalia as figured (Plate VI, fig. 2). They can be readily distinguished from *semicana* by the heavily chitinized and medially ridged eighth sternite, a character that can be easily seen by brushing the scales off the end of the abdomen on the ventral side.

Type: Male, New Brighton, Pennsylvania, June 15, 1902 (H. D. Merrick). U. S. N. M. Type No. 60131.

Paratypes: 1 male, Conistee Falls, Brevard, North Carolina, June 24, 1941 (R. L. Chermock), in Franclemont Collection; 1 female, Allegany State Park, New York, June 30, 1941 (A. R. Shadle), in the United States National Museum Collection; 1 female, Conistee Falls, Brevard, North Carolina, June 24, 1941 (R. L. Chermock), in Franclemont Collection.

Meropleon Dyar, 1924.

A study of the male and female genitalia of the two species, *diversicolor* Morrison and *ambifusca* Newman, at present placed in *Oligia*, has shown that these species are congeneric with *Meropleon cosmion* Dyar, and both should be removed to that genus.

The genus, as placed by McDunnough in his Check list, is far removed from its associates; it should be placed as an intermediate between *Procus* (*Oligia*) and its allies and *Archauara* Walker (*Nonagria*). The female genitalia of the three species, *cosmion*, *diversicolor* and *ambifusca*, are almost identical in structure with those of the species of *Archauara*, whereas the male genitalia are considerably more simplified than those of the species of that genus,

and recall, in essentials, those of the genus *Bellura* (*Arzama* or *Sphida*).

Apamea Ochsenheimer, 1816.

The first valid designation of a type for *Apamea* Ochsenheimer (*Schmetterlinge von Europa*, vol. 4, p. 75, 1816) was made by Samouelle in 1819 (*Entomologists' Useful Compendium*, p. 251), when he selected *Noctua basilinca* Schiffermüller, 1775, as the type. It has recently been shown that *Noctua basilinca* Schiffermüller is a synonym of *Phalaena sordens* Hufnagel, 1766. Since Samouelle's type designation antedates Curtis' designation of *Noctua chryso-grapha* Schiffermüller, 1775 = *Phalaena Noctua nictitans* Linnaeus, 1767 = *Phalaena Noctua oculo* Linnaeus, 1761¹ (*British Entomology*, vol. 6, p. 260, 1829), *Apamea* will supplant *Scptis* Hübner, [1821], in American lists.

However, there has been some debate over the Samouelle "type designations" in the Lepidoptera; the following three points have been raised by those who oppose them: First, it is said that he was dealing with only British insects; this is baseless as long as the species designated as type was originally included in the genus by its author. The second challenges Samouelle's statement ". . . which may be considered as types . . ." as being ambiguous and suggesting the possibility of a future change. The third calls attention to the fact that of the thirty so-called type designations only eleven are valid because more than one species is cited under the other nineteen names. This last fact places the designations in much the same light as those of Latreille in 1810 (*Considérations Générales sur l'Ordre Naturel des Crustacés, Arachnides et Insectes*). For the present I am accepting, as was done by Tams (*Entomologist*, vol. 72, pp. 66-74 and 133-141, 1939), the eleven instances in which a single species was mentioned as being a valid type designation.

Apamea amputatrix (Fitch).

Hadena amica? Stephens, *Illustrations of British Entomology, Haustellata*, vol. 2, p. 180, pl. 23, fig. 2, 1829, *ncc* Treitschke, 1825.

Hadena arctica Boisduval, *Genera et Index Methodicus Europæ-*

¹ *Phalaena Noctua nictitans* Linnaeus, 1767, is a substitute name for *Phalaena Noctua oculo* Linnaeus, 1761. The only reference cited under *nictitans* is "Fn. Svec. 1215.*," which is *oculo* in the *Fauna Suecica*, 2nd Edition.

orum Lepidopterorum, p. 120, 1840 (*nomen nudum*²).

Hadena arctica Freyer, Neuere Beiträge zur Schmetterlingskunde, vol. 5, p. 19, pl. 394, fig. 1, 1842, *nec Hadena arctica* Zetterstedt, 1839. (See Opinion 134 of the International Commission on Zoological Nomenclature for the method to be applied in interpreting Freyer's system.)

Hadena amputatrix Fitch, Trans. New York State Agr. Soc., vol. 16, p. 425, 1856 (Third Report of the Noxious and Other Insects

EXPLANATION OF TEXT FIGURES.

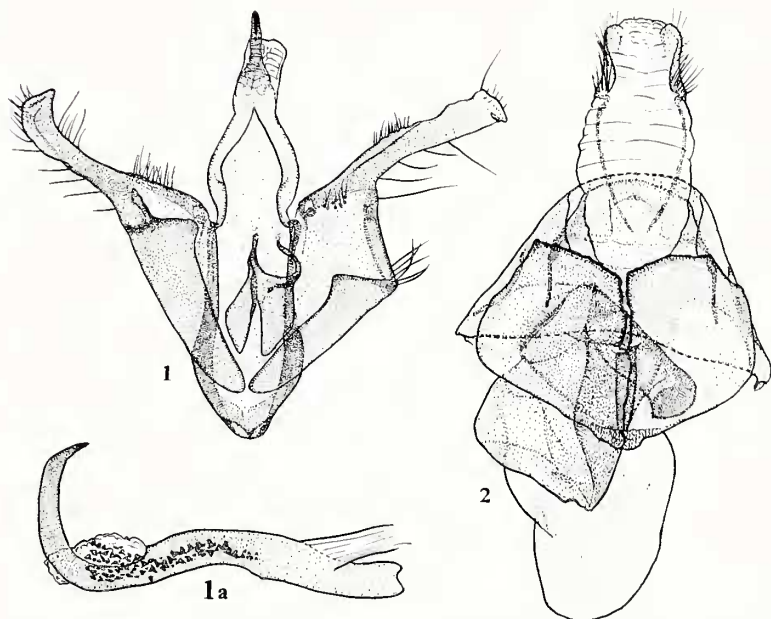


FIG. 1. Male genitalia of *Zalc phaeocapna* (Type), aedeagus removed.

1a. Aedeagus of *Zalc phaeocapna* (Type).

2. Female genitalia of *Zalc phaeocapna* (New Brighton, Pennsylvania).

² The Boisduval specimen associated with this name passed to the Oberthur, thence to the Barnes, and finally to the United States National Museum Collection. It is the species now going under that name in *Septis*, and not *Hadena arctica* Zetterstedt, 1839 (*Insecta Lapponica Descripta*, p. 939), which is at present in the genus *Anomogyna* Staudinger, 1871.

of New York, p. 425, or in the separate the page is 107).

The name *arctica* must be dropped from use in this genus as it is an original homonym, and in its place the name *amputatrix* should be used.

Amphipoca Billberg, 1820.

For the species now standing in *Apamea*, *Amphipoea* Billberg may be used. This name was proposed (Enumeratio Insectorum in Museo Gust. Joh. Billberg, p. 87, 1820) for the following species: *nictitans* Linn., *2 pustulata* [no author], *didyma* Brkh., *oculea* Fabr., *basilinea* Fabr., and *graminis* Linn. Tams' designation of *Phalaena Noctua secalis* Linnaeus, 1758 (Entomologist, vol. 72, p. 136, 1939) as the type is invalid because *secalis* is not included. *Phalaena Noctua nictitans* Linnaeus, 1767 = *Phalaena Noctua oculea* Linnaeus, 1761 = *Amphipoca oculea* (Linnaeus) is here designated as the type.

Zenobia Oken, 1815.

Zenobia Oken (Okens Lehrbuch der Naturgeschichte, vol. 3 (1), p. 681, 1815) with three included species, *oo* Linnaeus, 1758, *delphini* Linnaeus, 1758, and *retusa* Linnaeus, 1761, and with type designated as *Phalaena Noctua retusa* Linnaeus, 1761, by Prout (Entomologist's Record, vol. 13, p. 184, 1901) is an earlier name for *Ipimorpha* Hübner (Verzeichniss bekannter Schmettlinge [sic!], p. 238, [1821]) with type *Noctua subtusa* Schiffermüller, 1775, designated by Grote (Bull. Buffalo Soc. Nat. Sci., vol. 2, p. 24, 1874). *Plastenis* Boisduval (Genera et Index Methodicus Europæorum Lepidopterorum, p. 93, 1840) with type *Noctua subtusa* Schiffermüller, 1775, designated by Hampson (Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. 9, p. 147, 1910) is also a synonym. *Zenobia* has recently been used by European workers in place of *Ipimorpha*, and the same course of action should be taken by American workers.

CUCULLINAE

Sunira New Name.

For *Rusina* of our present list (McDunnough, Check List of the Lepidoptera of Canada and the United States, pt. 1, p. 86, 1938) a new name is needed. Through an oversight, which was based on an error of Hampson, we thought that the type of *Rusina* Stephens (Illustrations of British Entomology, Haustellata, vol. 2, p. 112, 1829) was *Noctua ferruginca* Schiffermüller, 1775 (= *Phalaena*

circellaris Hufnagel, 1766). However, upon checking Stephens' proposal of the genus, it was found that he included the species *Bombyx ferruginea* Esper, 1785 (= *Noctua umbratica* Goeze, 1781). The figure of the male of *Bombyx ferruginea* Esper (Die Schmetterlinge, vol 3, pl. 47, fig. 5) is readily recognized as the species included and described by Stephens, but the figure of the female (*loc. cit.*, fig. 6) is essentially unrecognizable, and apparently does not belong to the same species. The name *ferruginea* Esper is here restricted to the figure of the male, this being the common practice of European workers. The genus *Stygiostola* Hampson (Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. 7, p. 44, 1908), with *Noctua umbratica* Goeze, 1781, designated as the type at the time of the description of the genus, is an isogenotypic synonym of *Rusina* Stephens.

The name *Sunira*, with type *Xanthia bicolorago* Guenée, 1852 = *Sunira bicolorago* (Guenée), is proposed for *Rusina* Hampson (Catalogue of the Lepidoptera Phalaenae in the British Museum, vol. 6, p. 470, 1906) and *Rusina* McDunnough (Canadian Entomologist, vol. 69, p. 46, 1937). The species included are those listed by McDunnough under *Rusina* in his Check List and the Eurasian species, *circellaris* Hüfnagel.

ACONTIINAE

Unca Oken, 1815.

Unca Oken (Oken's Lehrbuch der Naturgeschichte, vol. 3 (1), p. 689, 1815) with three listed species, *triplasia* Linnaeus, 1758, *gamma* Linnaeus, 1758, and *mi* Clerck, 1759, and with the following species incidentally mentioned: *unca* Schiffermüller, 1775, *interrogationis* Linnaeus, 1758, *chrysitis* Linnaeus, 1758, *sulphurea* Schiffermüller, 1775, *glyphica* Linnaeus, 1758, and *lunaris* Schiffermüller, 1775; and with *Noctua unca* Schiffermüller, 1775 = *Phalaena Tortrix uncana* Linnaeus, 1761 = *Phalaena uncula* Clerck, 1759, type by tautonomy, is an earlier name for *Lithacodia* Hübner (Zuträge zur Sammlung exotischer Schmettlinge [*sic!*], vol. 1, p. 18, 1818) with type *Lythacodia bellicula* Hübner, 1818, by monotypy. *Eustrotia* Hübner (Verzeichniss bekannter Schmettlinge [*sic!*], p. 253, [1821]), with type *Noctua unca* Schiffermüller, 1775 = *Phalaena uncula* Clerck, 1759, by monotypy, is also a synonym. *Erastria* Ochseneimer (Schmetterlinge von Europa, vol. 4, p. 92, 1816), with thirteen included species, and with *Noctua unca* Schiffermüller, 1755 = *Phalaena uncula* Clerck, 1759, designated by Curtis (British Entomology, vol. 3, p. 140.

1826), is likewise a synonym. In addition it should be pointed out that the commonly used name for this group, *Erastria* Ochsenheimer, is a homonym of *Erastria* Hübner (Sammlung exotischer Schmetterlinge, vol. 1, pl. [203], [1813]). *Erastria* was first used by Hübner in 1806 ("Tentamen") for a geometer, and the name was continued in that group by Hübner; Ochsenheimer took up the name, but he applied it to a genus of noctuids!

If *Unca* is used, it will take precedence over all other names proposed for this concept, and it will replace *Erastria* of the McDunnough Check List (part 1, p. 109).

CATOCALINAE

Zale Hübner, 1818.

Zale phaeocapna n. sp.

In the spring of 1943, a few specimens of an unfamiliar species of *Zale* were taken at bait in southeastern Alabama. At that time it was thought that they might be the "true *lunifera*" of Hübner. However when this possibility was checked in 1946, it was easily proved to be incorrect. The species could not be matched with any of the described ones, though it was superficially close to *lineosa* Walker (*lunifera* auct.)

This species resembles *lineosa* Walker very closely and will undoubtedly be found confused with that species in collections. However, it is slightly smaller and with very different male and female genitalia.

Forewing gray brown, the basal area dark brown; the t. a. line well defined; the median shade consisting of three irregular, waved, parallel lines; the t. p. line follows the same course as that in *lineosa*, angled out from costa to vein R_5 , then with an inward curve to vein M_2 , and then outcarved and more or less straight to inner margin; a vague dark line parallel to the t. p. line, strongly accented on the costa by an irregular black shade; terminal area rather uniform; reniform a laterally compressed oval, somewhat shaded with black, with a pale area on its outer side. Hind wing much like the forewing; the t. p. line continuous and with a finely waved, straight, black line parallel to it and followed by a bluish brown shade; terminal area as on forewing. Below both wings a rather uniform dusky, gray brown, with a faint discal spot on both wings; the outer line evenly curved and dark.

Male genitalia as figured (text figures 1 and 1a). They differ from all other North American species by the possession of a large number of short, stout cornuti on the vesica of the aedeagus.

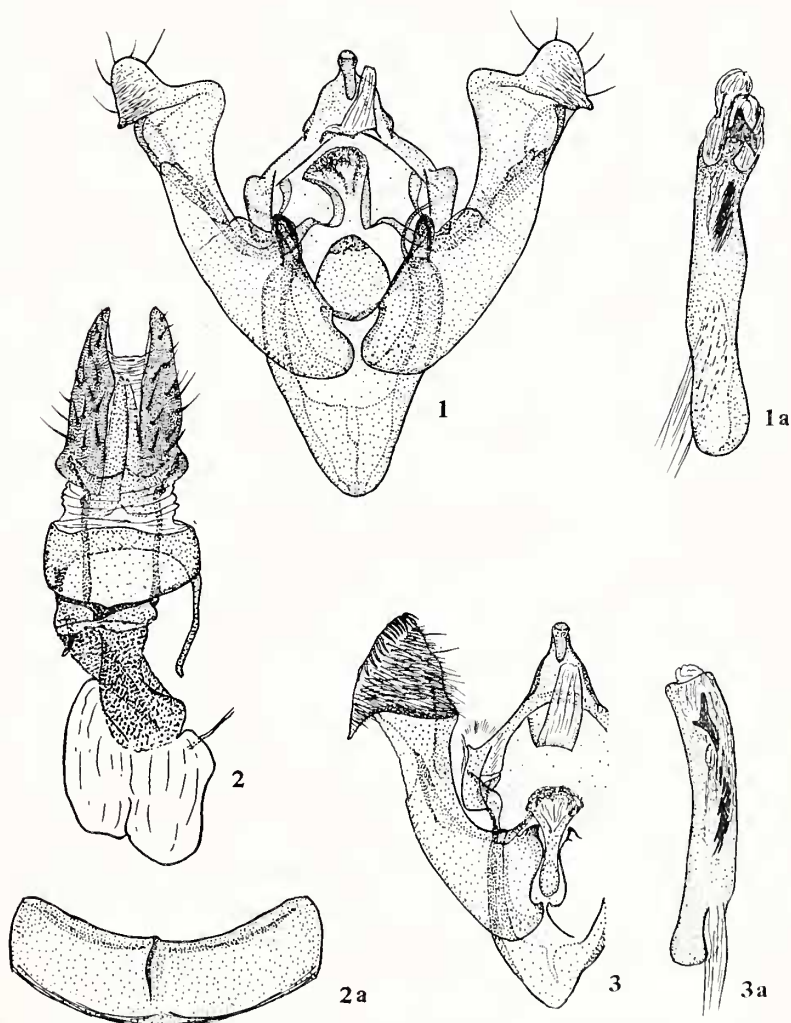


FIG. 1. Male genitalia of *Procus crytora* (Type) aedeagus removed.

1a. Aedeagus of *Procus crytora* (Type).

2. Female genitalia of *Procus crytora* (Allegany State Park, New York).

2a. Eighth sternite of the female of *Procus crytora*.

3. Male genitalia of *Procus semicana* (Walker) (New Brighton, Pennsylvania). aedeagus removed.

3a. Aedeagus of *Procus semicana* (Walker).

Female genitalia as figured (text figure 2). The ventral plates are almost symmetrical, but the opening to the ductus bursae is under the left plate.

Type: Male, New Brighton, Pennsylvania, May 10, 1903 (H. D. Merrick), U.S.N.M. Type No. 60132.

Paratypes: 6 males and 3 females, New Brighton, Pennsylvania, April 19–May 4 (H. D. Merrick), 4 Collection of the Academy of Natural Sciences of Philadelphia, 3 Collection of the United States National Museum, 2 Collection of the Carnegie Museum of Pittsburgh; 2 males, Oak Station, Pennsylvania, April 19 and May 1 (Fred Marloff), Collection of the Carnegie Museum of Pittsburgh; 1 male and 1 female, Pittsburgh, Pennsylvania, April 27 and May 14 (Henry Engel), Collection of the Carnegie Museum of Pittsburgh; 5 females, Shawville, Clearfield County, Pennsylvania, May 2–June 1 (John Bauer), Collection of the Carnegie Museum of Pittsburgh; 2 males and 4 females, Camp Rucker, Ozark [Daleville], Alabama, March 19–April 7, 1943 (J. G. Franclemont), Franclemont Collection; 1 male, no data, Collection of the Carnegie Museum of Pittsburgh.

I wish to thank Mr. James A. G. Rehn, of the Academy of Natural Sciences of Philadelphia, for the loan of four specimens of this species; they were the specimens which had been referred to *lunifera* by Haimbach (Trans. Amer. Ent. Soc., vol. 54, p. 226, 1928). I also wish to thank Dr. Walter R. Sweadner, of the Carnegie Museum of Pittsburgh, for the loan of the entire series of *lineosa* Walker (*lunifera* auct.), *penna* Morrison and *galbanata* Morrison, for it was in this material that an additional thirteen specimens of *phaeocapna* were found.

Zale calycanthata (Smith & Abbot).

Phalaena calycanthata Smith & Abbot, The Natural History of the Rarer Lepidopterous Insects of Georgia, vol. 2, p. 207, pl. 104, 1797.

Phaeocyma calycanthi Hübner, Beiträge zur Sammlung exotischer Schmetterlinge [*sic!*], vol. 1, p. 19, 1818. (Emendation of *calycanthata*).

The Abbot plate contains the representations of two species of this genus, *lunifera* Hübner at the top left of the plate and *calycanthata* of authors at the bottom right. In order to maintain the name *calycanthata* in its prevailing use, it is restricted at this time to the figure in the lower right of plate 104.

The range of this species is from New Jersey to Texas. The

Texas specimens included by Smith in his type series of *colorado* belong to this species.

The moth has been reared from larvae found on oak.

Zale lunifera (Hübner).

Phalaena calycanthata Smith & Abbot (in part), *The Natural History of the Rarer Lepidopterous Insects of Georgia*, vol. 2, p. 207, pl. 104, 1797.

Phaeocyma lunifera Hübner, *Zuträge zur Sammlung exotischer Schmettlinge [sic!]*, vol. 1, p. 19, figs. 97 and 98, 1818.

Type locality: "Georgien in Florida."

Location of type: Unknown.

Homotera cingulifera Walker, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum*, part 13, p. 1056, 1857.

Type locality: "East Florida."

Location of Type: British Museum (Natural History).

Homoptera intenta Walker, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum*, part 13, p. 1070, 1857.

Type locality: "—————?" [The specimen now has associated with it a label bearing the following data, "St. Vincent/39. 7. 17, /64."]

Location of type: British Museum (Natural History).

Homoptera woodii Grote, *Canadian Entomologist*, vol. 9, p. 89, 1877.

Type locality: "Centre, New York."

Location of type: British Museum (Natural History).

It is very difficult to understand how anyone could have confused this species with *lincosa* Walker, because Hübner's figures are excellent representations of the species now standing as *cingulifera* Walker in most collections. The error must have arisen either by an inability or a failure to consult the original of the "Zuträge." The so-called "Facsimile Edition" of the "Zuträge" by Wytsman and Kirby has a very poor copy of the Hübner figures, but nevertheless they are more like the species discussed here than *lincosa*.

The larvae of this moth have been raised on black cherry (*Prunus serotina*).

Zale lincosa (Walker).

Homoptera lincosa Walker, *List of the Specimens of Lepidopterous Insects in the Collection of the British Museum*, part 13, p. 1056, 1857.

Type locality: "United States."

Location of type: British Museum (Natural History).

Homoptera galbanata Morrison, Proc. Acad. Nat. Sci. Philadelphia, [vol. 27], p. 435, 1875 [1876]. (New synonymy.)

Type locality: "Glencoe, Nebraska."

Location of type: Unknown.

Homoptera penna Morrison, Proc. Boston Soc. Nat. Hist., vol. 18, p. 24, 1876. (New synonymy.)

Type locality: "Galena, Illinois."

Location of type: Unknown.

This is the species which is standing in almost all collections under the name of *lunifera* Hübner, but, as pointed out above, this is not at all compatible with Hübner's figures of that species. Grote seems to have originated this misidentification, and occasional efforts to dispute it have generally been ignored. I cannot guess why Grote thought this species was the one figured by Hübner, because I know that Grote had available only the original edition of Hübner's "Zuträge."

Morrison's two names, *galbanata* and *penna*, are referable to this extremely variable species. The descriptions are good, and that of *galbanata* is close to typical *lineosa*, whereas that of *penna* is of the form with the conspicuous black band on the inner side of the t. p. line. I have examined specimens identified as *penna* and *galbanata* from the type localities, and find the genitalia to be the same as those of *lineosa*. I do not believe that the names can be accorded racial status, and I would not use them to designate forms.

Caenurgia Walker, 1858.

Caenurgia chloropha (Hübner), New Combination.

Gloe chloropha Hübner, Erste Zuträge zur Sammlung exotischer Schmetterlinge, p. 5, 1808. (*Nomen nudum*.)

Xestia chloropha Hübner, Zuträge zur Sammlung exotischer Schmettlinge [*sic!*], vol. 1, p. 16, figs. 73 & 74, 1818.

Type locality: "Georgien in Florida."

Location of type: Unknown.

Drasteria convalescens Guenée, Histoire Naturelle des Insectes, Species Général des Lépidoptères, vol. 7. p. 289, (Noctuelles), pl. 22, fig. 9, 1852. (New synonymy.)

Type locality: "Amérique Septentrionale."

Location of type: United States National Museum.

Caenurgia socors Walker, List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, part 14, p. 1492, 1858.

Type locality: "East Florida and New York."

Location of type: British Museum (Natural History).

Caenurgia purgata Walker, List of the Specimens of Lepidopterous Insects in the Collection of the British Museum, part 14, p. 1492, 1858.

Type locality: "East Florida."

Location of type: British Museum (Natural History).

Dr. W. T. M. Forbes has recently demonstrated to me that Hübner's figures of *chloropha* are excellent representations of a somewhat dark female of the species now standing in collections under the name of *convalescens*. The figures do not in the least resemble *Heliothis lupatus* Grote, with which Barnes and McDunnough identified it in their 1917 Check List (page 38). Thus *chloropha* should be transferred to *Caenurgia* and used in place of *convalescens*, and *lupatus* should be used for the species of *Heliothis* at present referred to under the name of *chloropha*.

A Curious Habit of an Empidid Fly; Third Note. The previous notes on the mating behavior of *Rhamphomyia longicauda* Loew were published in this Bulletin, Vol. XXXVI, p. 117 (1941), and Vol. XXXVII, p. 67 (1942), under the name *Rhamphomyia fumosa* Loew. Curtis W. Sabrosky has kindly furnished me with the correct name after examination of the Loew types. We have found the fly to be abundant in southern Michigan from the end of May to the middle of July.

I have seen many of the flies on Grosse Ile during the last few years, but this year they are more abundant than ever and on June 27 I saw a large swarm flying about in a small area on the west side of my tool-shed a foot or two above the ground. The swarm seemed to consist largely of males, although the females were also abundant enough. One sweep of the net yielded nine males, one female, six caddis flies (*Oecetis inconspicua* Wlk.), and three gnats (two *Pentaneura monilis* L. and one *Procladius culiciformis* L.). Most of the males seemed to be carrying a caddis fly and the mating pairs flying in circles at a somewhat higher elevation also had a caddis fly. A couple more sweeps with the net captured 16 male *Rhamphomyia* (plus a few that escaped), 4 females, and 17 *Oecetis*.—
GEORGE C. STEYSKAL, Grosse Ile, Michigan.